

HOT TOPICS



Presented by staff members from
Chesterfield, Hanover, and Henrico

Facility Info

- Exits
- Bathrooms
- Smoking areas are outside of the building



Building Officials

- **Chesterfield** - Bill Dupler
- **Hanover** - Richard Bartell
- **Henrico** - Greg Revels

Team Members

- **Chesterfield**

Barry White, Chuck Bajnai, and Chris Davis

- **Hanover**

Raymond Edwards and John Crispin

- **Henrico**

Richard Moore and Jim Noctor

- **With support from Virginia Department of Housing and Community Development**

Module

Hot Topics

All code sections are based on the:

- 2003 International Residential Code (IRC)
- 2003 Virginia Uniform Statewide Building Code (VUSBC) **effective date 11/16/2005**

Agenda

- Topics from Chapter 3 and Chapter 11
- 10 Minute Break
- Braced walls, decks, ice shield and flashing
- Q and A

HOT TOPIC #1

FIRE SEPARATION DISTANCE

R302.1 Exterior walls

Definition

“Fire separation distance”

The distance measured from the building face to:

1. the centerline of a street,
2. the closest interior lot line,
3. an imaginary line between two building on the property.

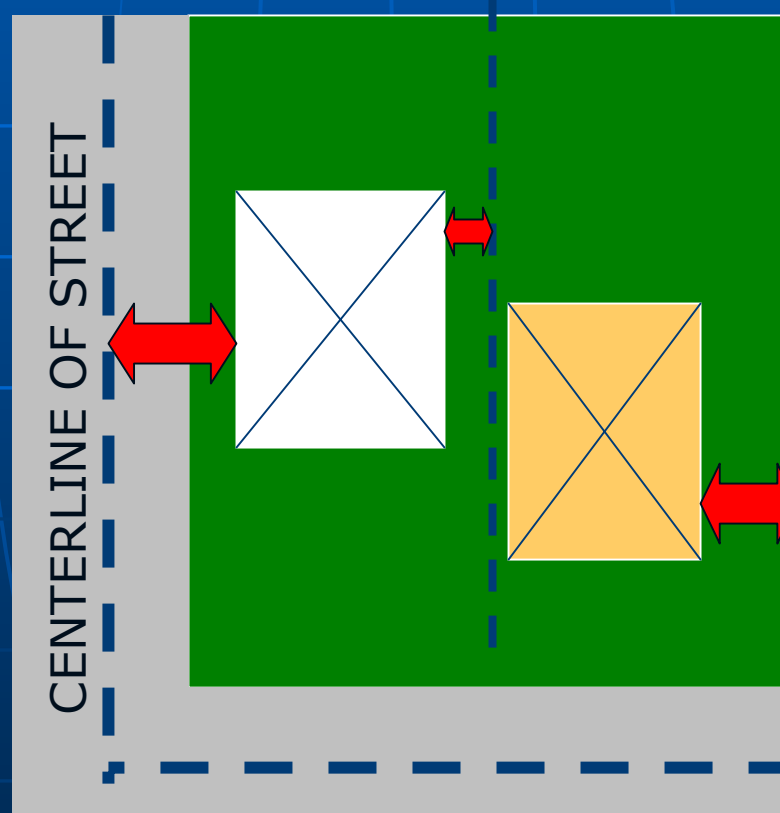
The distance shall be measured at right angles from the lot line

R302.1 Exterior walls

“FIRE SEPARATION DISTANCE”

3. DISTANCE TO AN IMAGINARY LINE BETWEEN TWO BUILDINGS ON THE SAME PROPERTY

1. DISTANCE TO CENTERLINE OF STREET



PROPERTY LINE

2. DISTANCE TO INTERIOR PROPERTY LINE

R302.1 Exterior walls

(as amended by VUSBC)

Any house or detached structure, with a “*fire separation distance*” less than 5 feet requires a 1hour fire rated wall assembly for that portion of the exterior wall that is within the 5 foot distance.

Exception: tool sheds, playhouses, etc. are exempt

R302.1 Exterior walls

(as amended by VUSBC)

What does that mean:

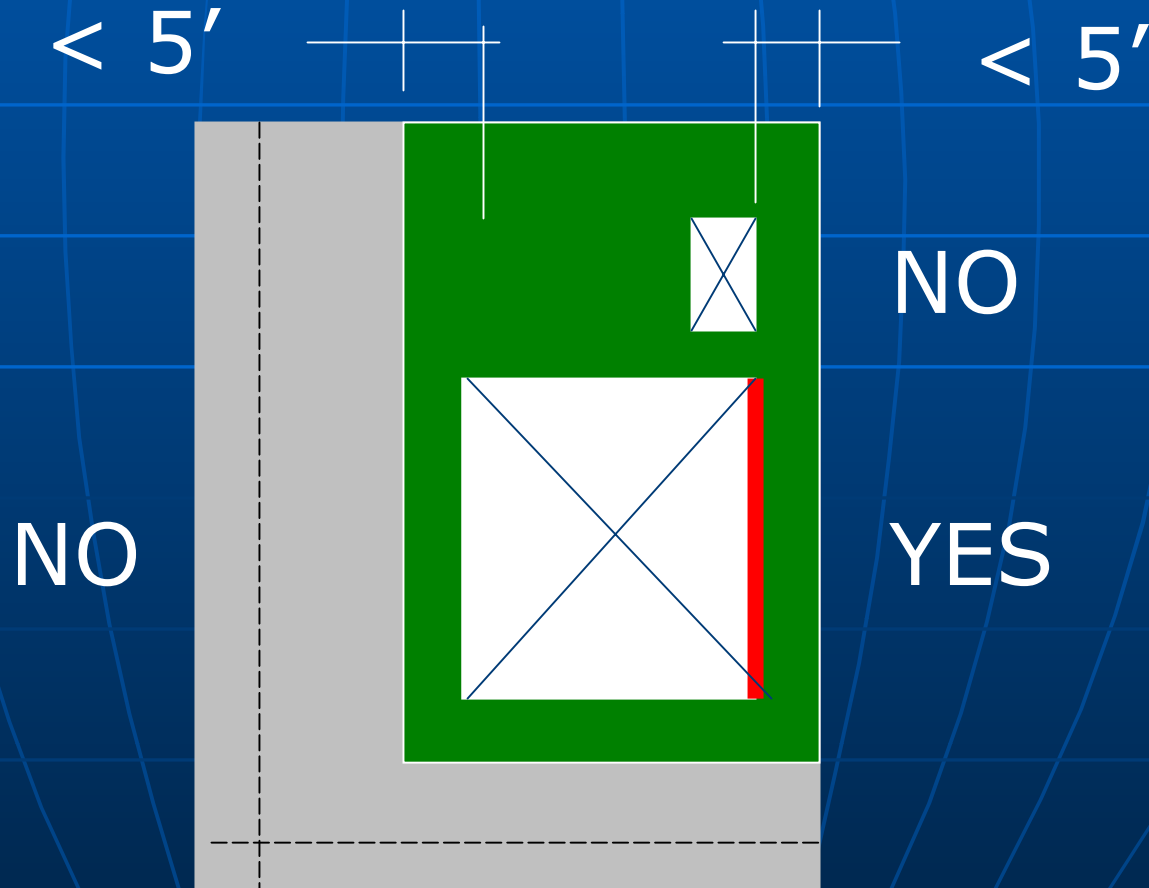
- It applies to two houses sharing an adjacent property line,
- It applies to two structures on the same lot (townhouses, condos, etc.)
- If the structure is on a corner lot, the exterior wall that is adjacent to the street does not have to be rated



1 HOUR RATED WALL

R302.2 Openings in exterior walls (as amended by VUSBC)

The “**fire separation distance**”, less than **5 feet** must be rated, exception tool sheds



R302.1 Exterior walls

(as amended by VUSBC)

Overhangs and soffits are permitted to extend no closer than **2 feet** from the line used to determine the “fire separation distance”.

Detached garages within **2 feet** of the line used to determine the fire separation distance can have an overhang not greater than **4 inches**

R302.2 Openings in exterior walls

(as amended by VUSBC)

Any house or detached structure, with less than a 5 foot fire separation distance:

- **Openings:**
 - 0'-3': no openings permitted
 - 3'-5': openings limited to 25% of the wall length
 - Openings are permitted on walls perpendicular to line used for the fire separation
 - Soffit openings on overhangs are not allowed
 - Foundation vents are permitted



**Overhangs not closer
than 2' to fire separation**

**Portion of wall
(including openings)
@ 90° are OK**

1hr. Wall required

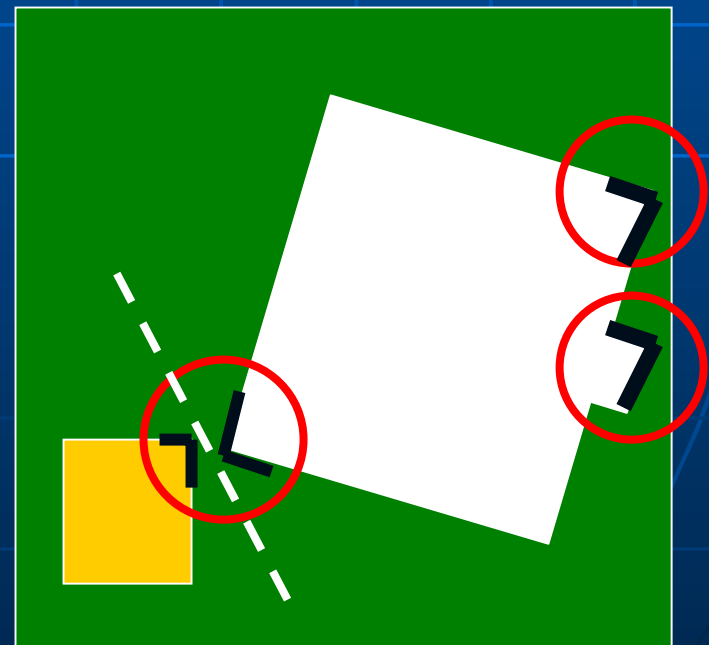
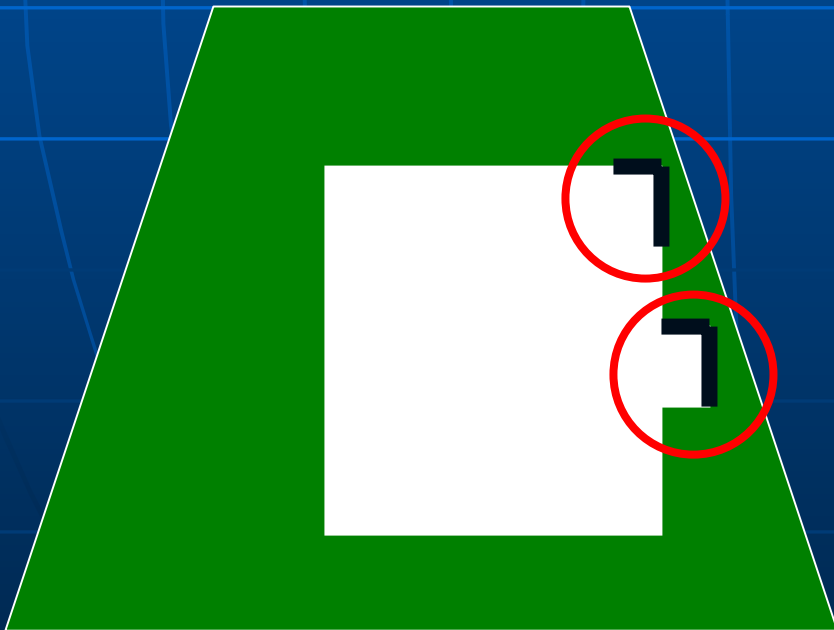
**Foundation
vents are OK**

<5'

R302.2 Openings in exterior walls

(as amended by VUSBC)

Since the side and rear walls are not perpendicular to the line used to determine the “**fire separation distance**”, openings within **5 feet** on both walls must be rated



HOT TOPIC #2

GLAZING IS HAZARDOUS LOCATIONS

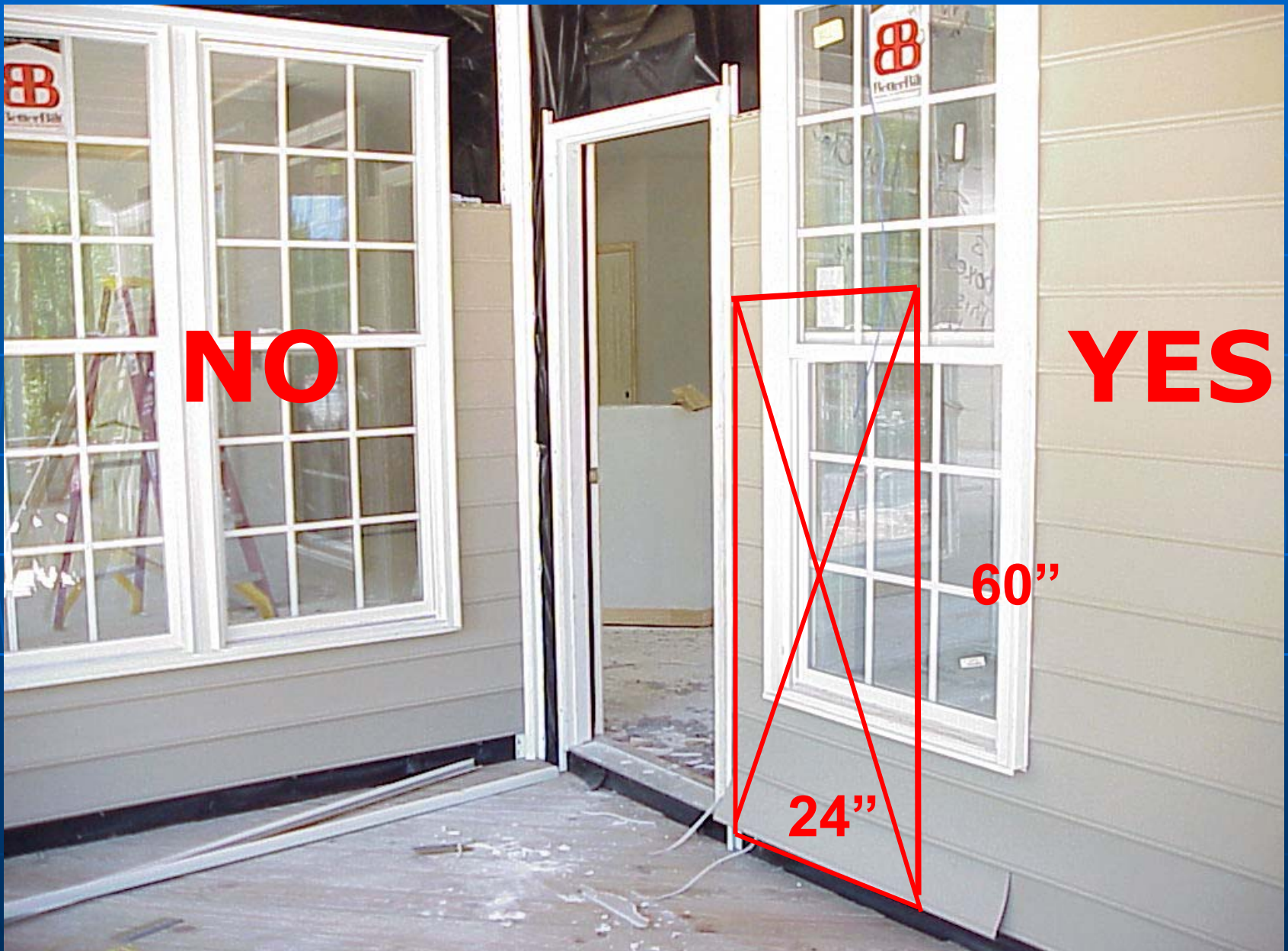
R308.4 Glazing in hazardous locations

Item #6:

Safety glazing is required at least 60 inches vertically above the floor in any window pane within 24 inches of either side of a door

Exception

1. Windows in walls **perpendicular** to the door do not have to be safety glazed
2. Windows in walls adjacent to a closet door less than 3 feet deep do not have to be safety glazed



SAFETY GLAZING REQUIRED ADJACENT TO DOOR

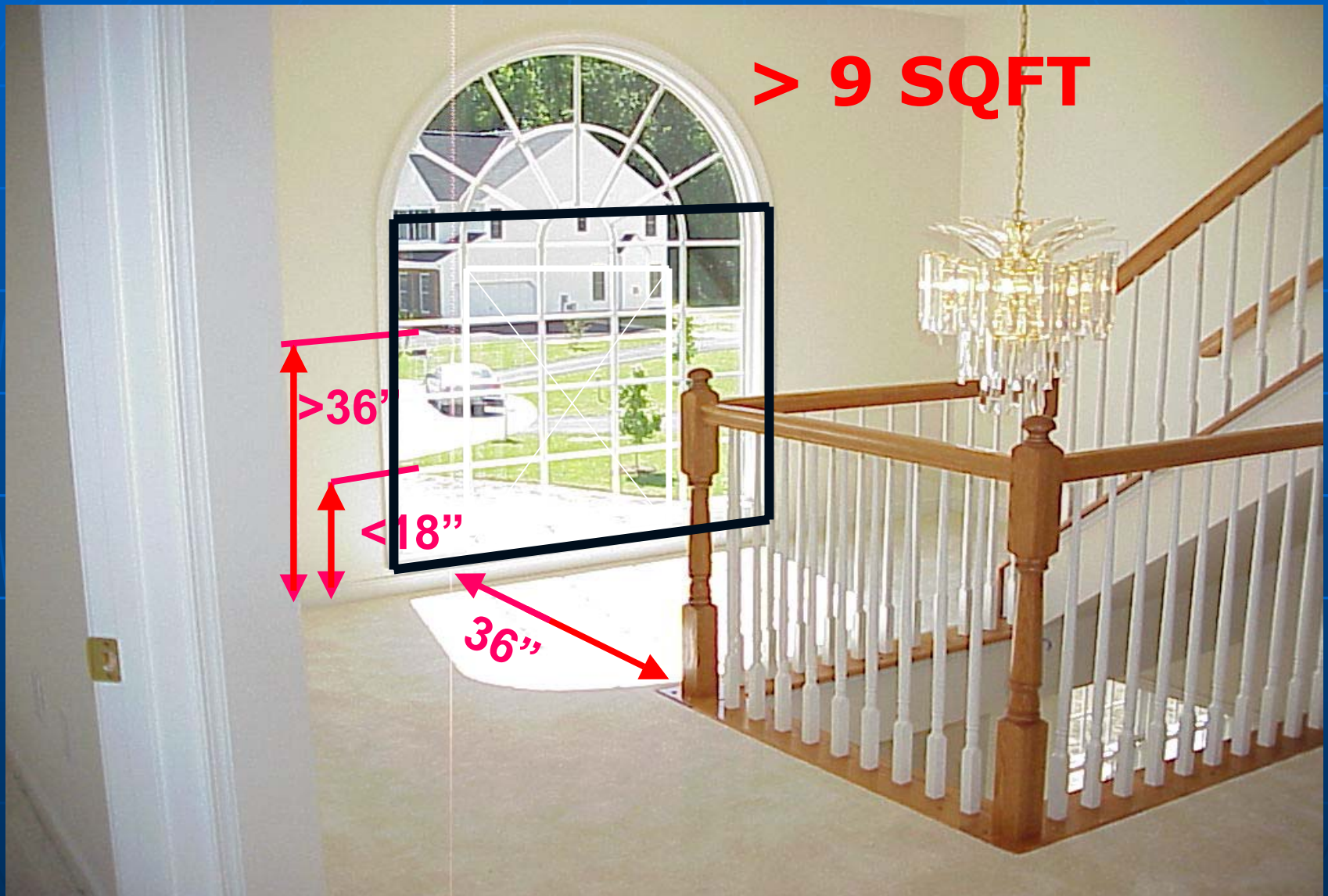


Window adjacent to closets

R308.4 Glazing in hazardous locations

The two exceptions do not apply if the window has **ALL** of the following conditions:

- Individual pane is greater than **9 square feet**
- The bottom of the glazing is less than **18 inches** above the floor
- The top of the glazing is more than **36 inches** above the floor
- The walking surface is within **36 inches** of the glazing



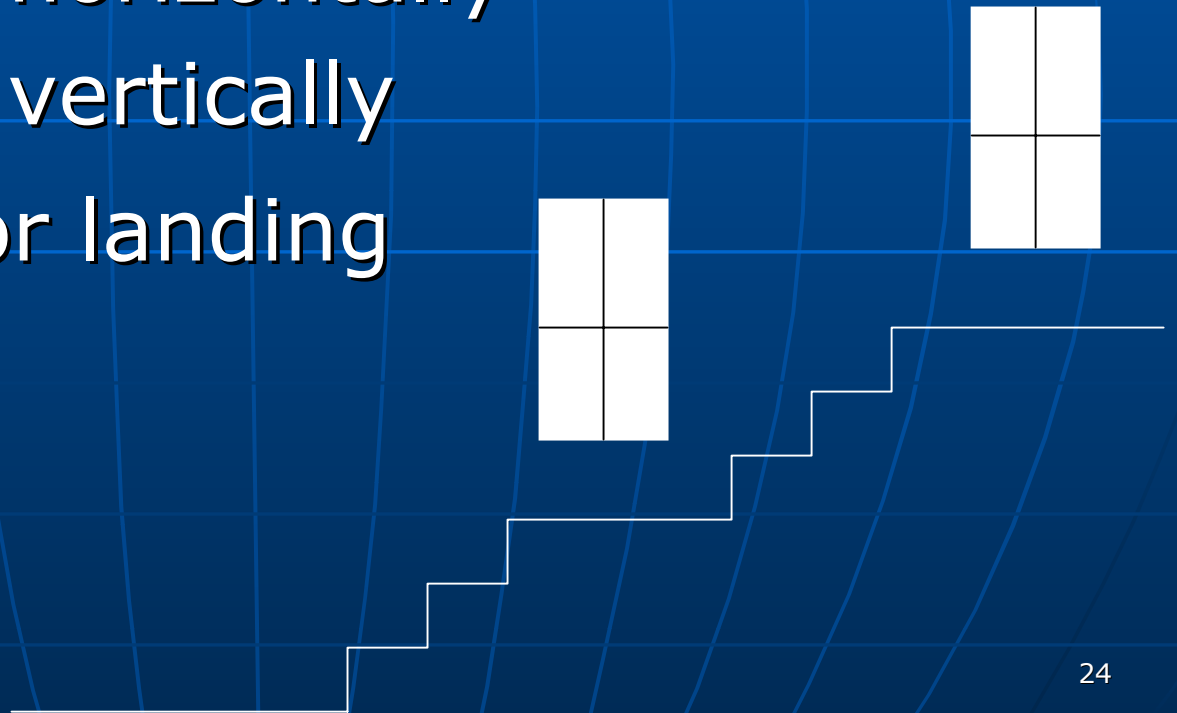
“9 SQFT RULE” REQUIRES TEMPERED GLASS

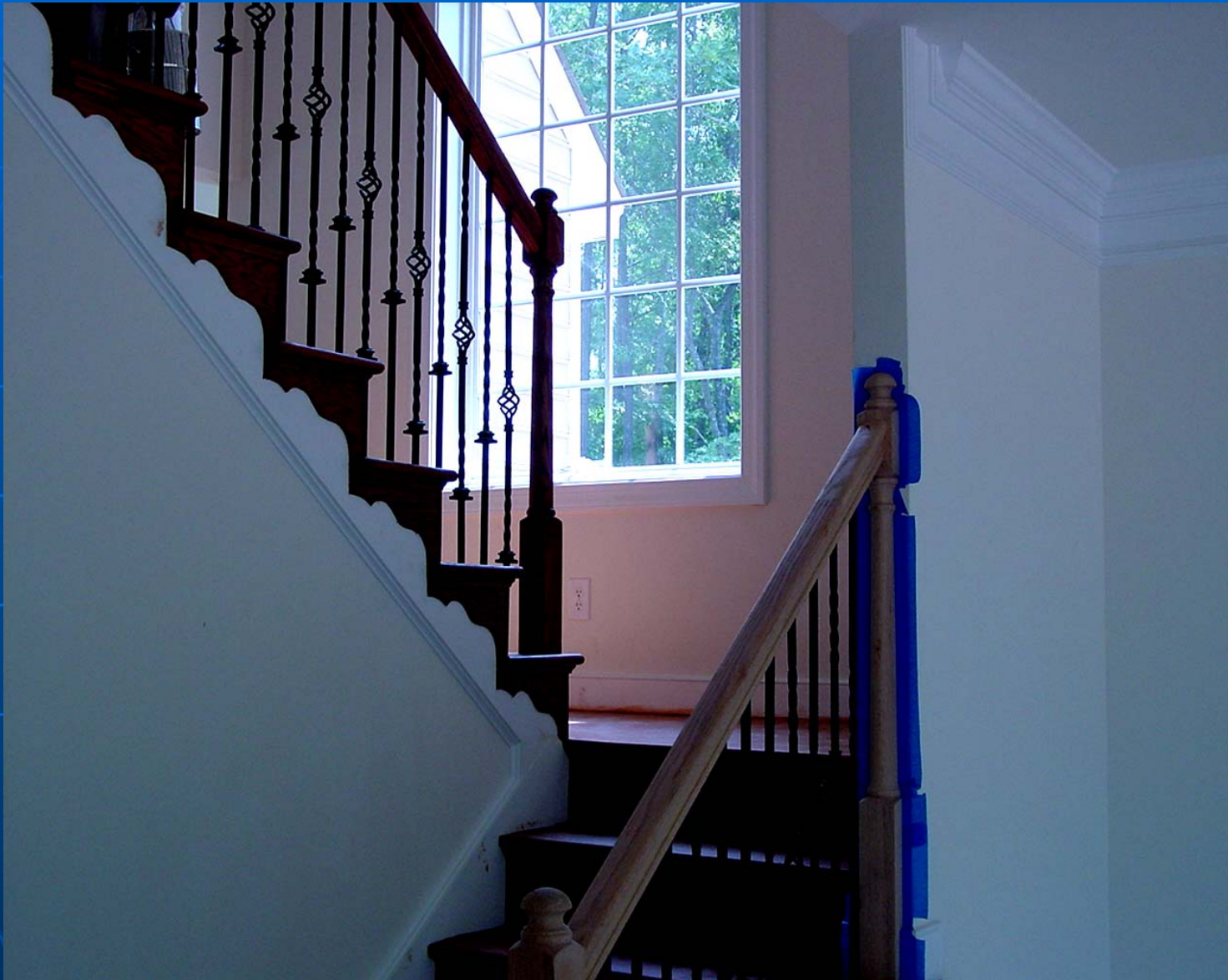
R308.4 Glazing in hazardous locations

Item #10:

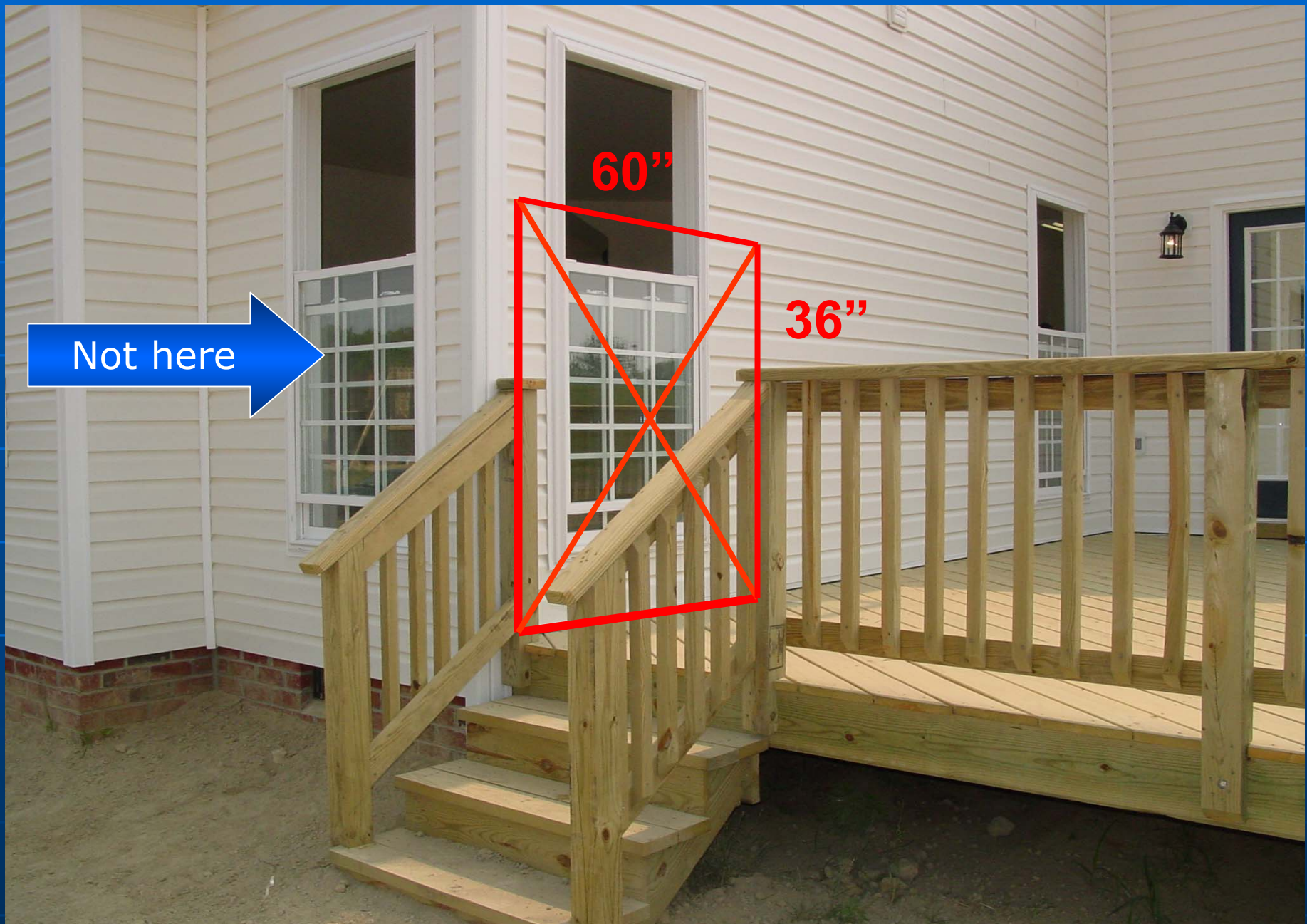
Requires safety glazing in any window within:

- 36 inches horizontally
 - 60 inches vertically
- of a stairway or landing





Safety glazing required since window is within 36" horz. and 60" vert. of a landing



APPLIES TO DECK SITUATIONS TOO

R308.4 Glazing in hazardous locations

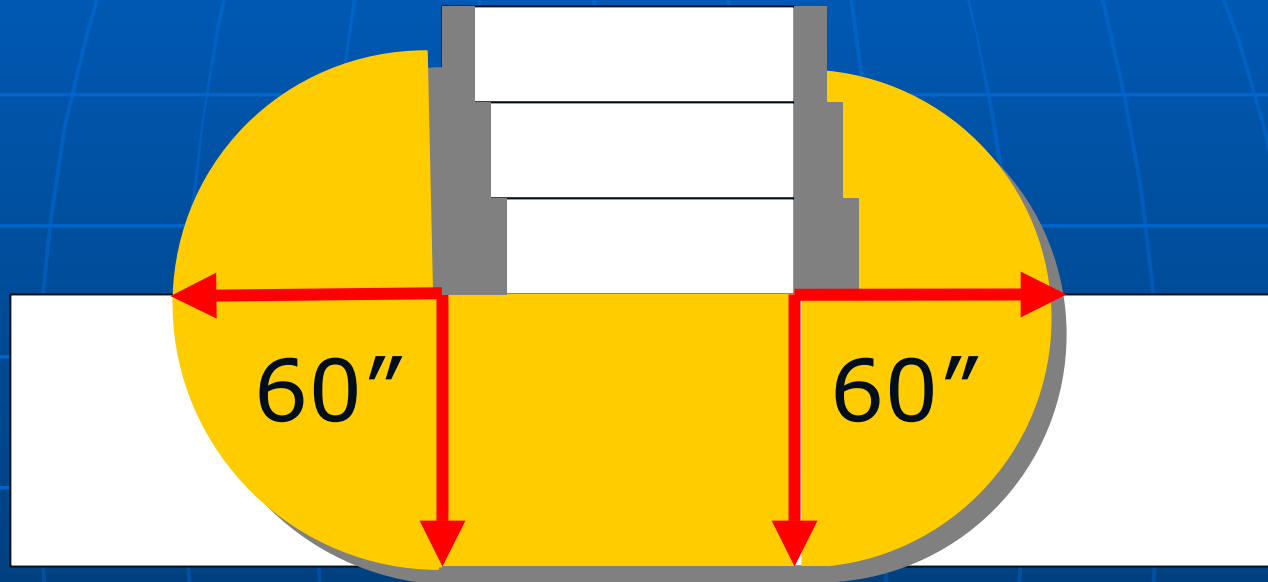
Item #11:

Requires safety glazing in any window adjacent to a stairway within:

- 60 inches horizontally
- 60 inches vertically

of the **bottom** tread of a stairway in any direction





Safety glazing required within
60" horizontally and 60" vertically
of the bottom of the stair



Safety glazing required since window is within 60" horizontally of the bottom of the stair

HOT TOPIC #3

EMERGENCY EXITS FROM BASEMENTS

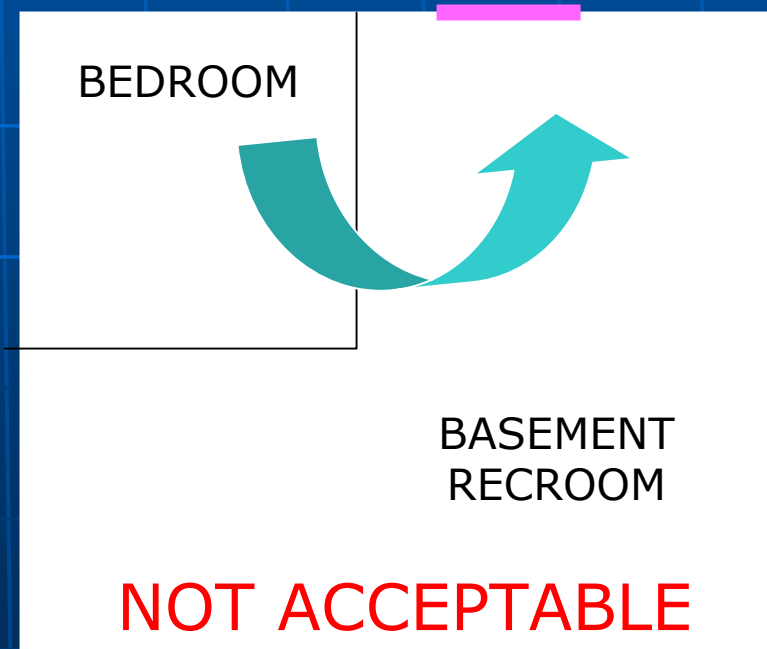
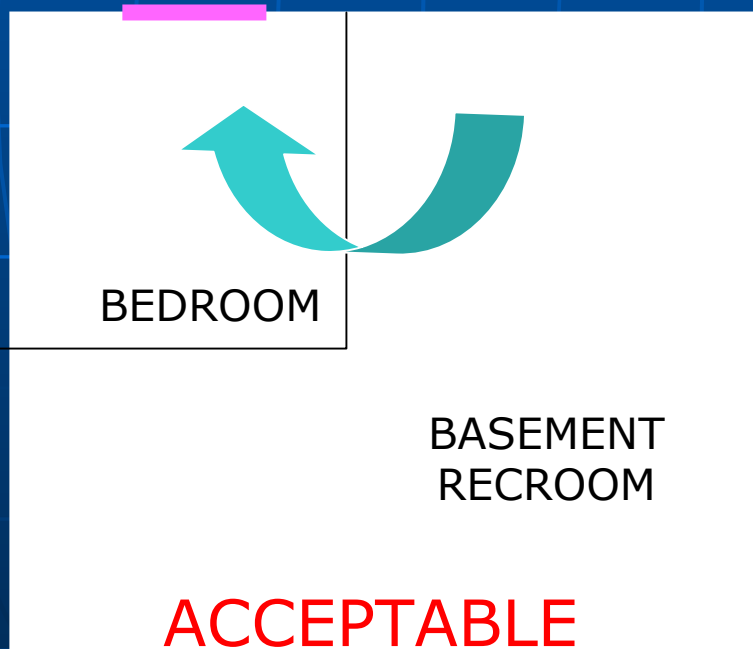
R310 Emergency egress (as amended by VUSBC)

An **openable** emergency escape and rescue opening is required for:

- Each bedroom designated on the plans
- Basement

Note: If the bedroom is in a basement, the bedroom opening can serve for both requirements (but not vice versa).

R310 Emergency egress (as amended by VUSBC)



R310 Emergency egress

The emergency egress opening from the basement can be a door or a window with a sill height of not more than **44 inches** above the floor.

Note: In basements, if the window is below grade, a window well must be provided.

R310 Emergency egress

(as amended by VUSBC)

- Exception: Dwelling units equipped throughout with an approved automatic sprinkler system installed in accordance with NFPA 13, 13R or 13D do not require an emergency exit in the basement.

R311 Landings (at attic stairs)

For stairs leading to a **habitable attic**, there must be a space (landing) at the bottom of the stairs for at least **36 inches** in the direction of travel and at least as wide as the stairway served.

HOT TOPIC #4

STAIRS TO HABITABLE ATTICS

R311 Landings (at attic stairs)

The space at the bottom of the stair may be interrupted by a door located no less than **10 inches** horizontally from the nosing of the bottom most tread to the interior of the door trim.



NOTE: The placement of a door directly on top of the bottom most tread is not permitted.



For stairs to habitable attic, nosing must be held back 10" from the inside trim of the door



HOT TOPIC #5

INSULATION IN ENCLOSED AREAS

R316 Insulation requirements (enclosed areas)

Vapor Retarders are required on the warm in the winter side of perimeter walls, floors and roof assemblies which are unventilated. The materials must have:

- A flame spread index not to exceed 25
- A smoke developed index not to exceed 450

R316 Insulation requirements (enclosed areas)

The vapor retarder must be in "SUBSTANTIAL CONTACT" with **gypsum wall board or floor sheathing**.

Note: In concealed areas where the facing is not in substantial contact a flame resistant facing covering the insulation is required (FSK or equivalent). This applies to areas behind tubs, showers, and areas under stairsetc.





Behind tubs



Behind Showers



At stairs and landings



N1102 Insulation (required R-values Errata)

Climate Zone	HDD	MAXIMUM GLAZING U-FACTOR	Ceilings	Walls	Floors	Basement Walls	Slab perimeter R-value and depth	Crawlspace Walls
8	3,500 – 3,999	0.50	R-30	R-13	R-19	R-8	R-5, 2 ft.	R-10
9	4,000 – 4,499	0.45	R-38	R-13	R-19	R-8	R-5, 2 ft.	R-11

Chesterfield 8

Henrico 8

Hanover 9

BREAK

We will have a 10 minute break.





R602.10 Braced Wall Panels

Options:

- 602.10.3 8 methods
- 602.10.5 Continuous OSB
- 602.10.10 Engineer shear wall
- Specialized products
- Special testing agencies

R602.10 Braced Wall Panels

602.10.3 Eight methods allowed,
the most common:

- #3 5/16" OSB or Plywood
- #4 1/2" Structural Fiberboard
 - Structural Blackboard
 - "Sturdy-brace"



METHOD #4 STRUCTURAL FIBERBOARD



METHOD 602.10.5 CONT. OSB

R602.10.3-4 Braced wall panels

Specific requirements for any of the eight specified methods:

- 48" pieces
- Within 12' of the corner
- Within 25' o.c.
- Minimum 16% of the BWL length



Interior BWP required if spacing between parallel BWLs > 35'

R602.10 Braced Wall Panels



R602.10 Braced Wall Panels

Length (example 70')

Max 50'

Width (example 25')

Exception 35' can be increased to 50'

A. If "aspect ratio" (length/width) $\leq 3:1$

B. AND "% required" increases to $L/35$

ex. $16\% \times 70/35 = 32\%$

R602.10 Braced Wall Panels

OPTION: 602.10.5 Continuous OSB
(when you don't have 48 inches)

- Continuous OSB over the whole house
- Minimum 24" – 27" – 30"
 - function of the adjacent opening heights
- **Overlap the corners**
 - Sheathing must cover at least 3 studs without engineered design

R602.10 Braced Wall Panels

OPTION: Engineer the shear wall

- Provide:
 - Exact location on plans
 - Specify sheathing
 - Specify nailing patterns
 - Show connection details at footing and header

R602.10 Braced wall panels

OPTION: Specialized products

Simpson Steel Strong-Walls
(12" - 24")

Truss Joist Shear Panel
(16"- 48")

SIMPSON STEEL STRONG-WALL™



SIMPSON STEEL STRONG-WALL™



TRUSS JOIST® SHEAR PANEL



TRUSS JOIST® SHEAR PANEL



R602.10 Braced Wall Panels

OPTION: Special Testing Agencies

- APA 100 (formerly TT-073A) with hold-downs
 - 16" – 18" – 20"
 - First floor only
 - Does not require continuous OSB
- APA E425 (formerly TT-077) without hold-downs
 - Any floor
 - Requires continuous OSB
 - 16" – 18" – 20"

R602.10 Braced Wall Panels

SUMMARY

- 602.10.3 (8) methods 48"
 - #3 OSB (non-continuous)
 - #4 Structural fiberboard
- 602.10.5 Continuous OSB 24"-27"-30"
- 602.10.10 Eng. shear wall as specified
- Specialized products 12"-24"
- Special testing agencies 16"-18"-20"

HOT TOPIC #7 DECKS

Deck Handrails and Guardrails

Guardrail and handrail posts **cannot** be notched more than NDS allowances because they are in tension.

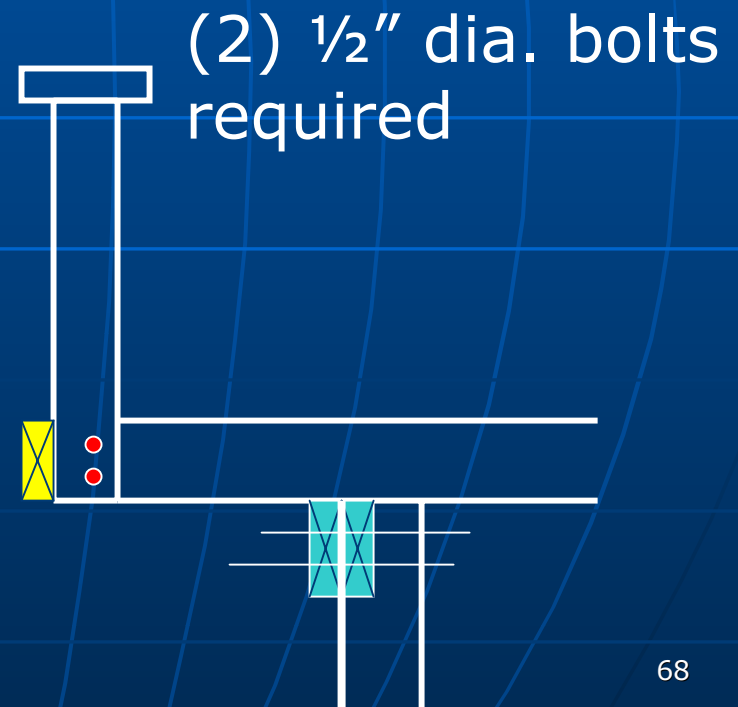
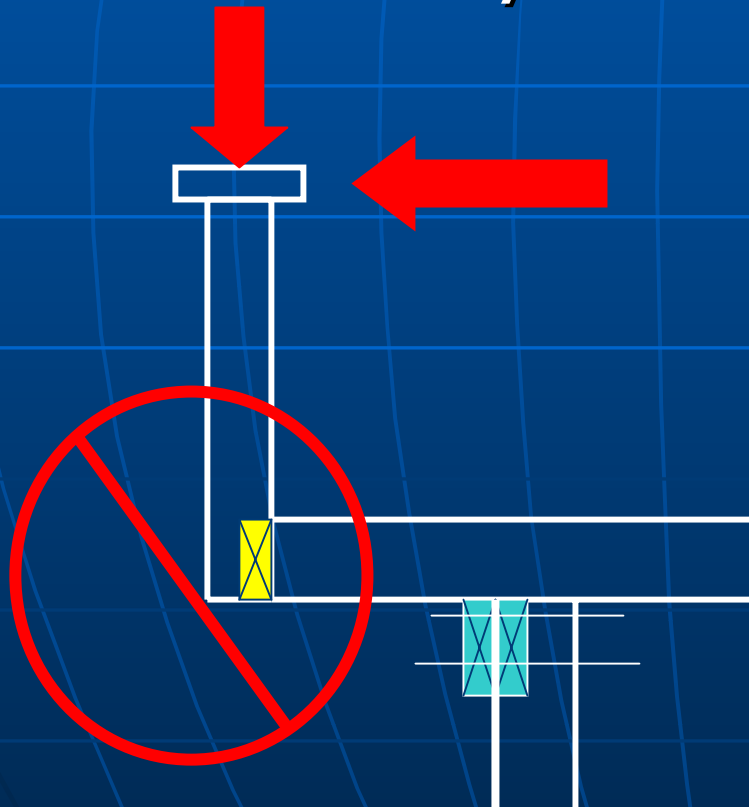


Table R502.2.1.1 Deck Attachment to House (as amended by VUSBC)

Joist span	1/2" lag	1/2" thru bolt & washer
6'-0" and less	30" o.c.	36" o.c.
6'-1" to 8'-0"	23" o.c.	36" o.c.
8'-1" to 10'-0"	18" o.c.	34" o.c.
10'-1" to 12'-0"	15" o.c.	29" o.c.
12'-1" to 14'-0"	13" o.c.	24" o.c.
14'-1" to 16'-0"	11" o.c.	21" o.c.
16'-1" to 18'-0"	10" o.c.	19" o.c. ⁶⁹

R502.2.1.1.Deck Attachment (as amended by VUSBC)

- The tip of the lag screw or bolt must fully extend beyond the inside face of the band
- The lag screw or bolt must be **staggered** from the top to the bottom of the band and placed **2"** from the top, bottom or end of the band

HOT TOPIC #8

ICE SHIELD

R905.2.7.1 Ice protection on roofs

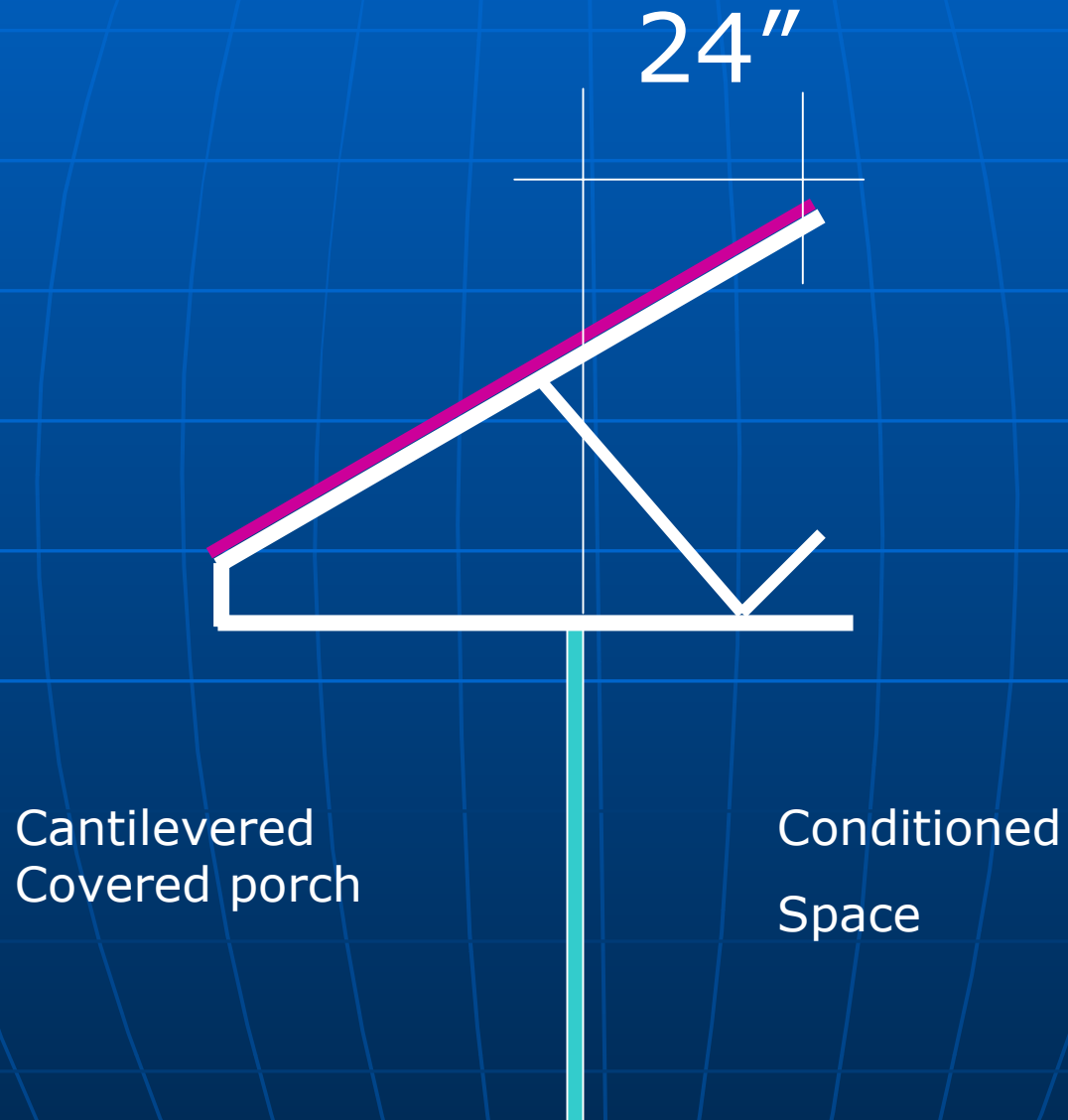
Ice shield is required in **all 3 localities**

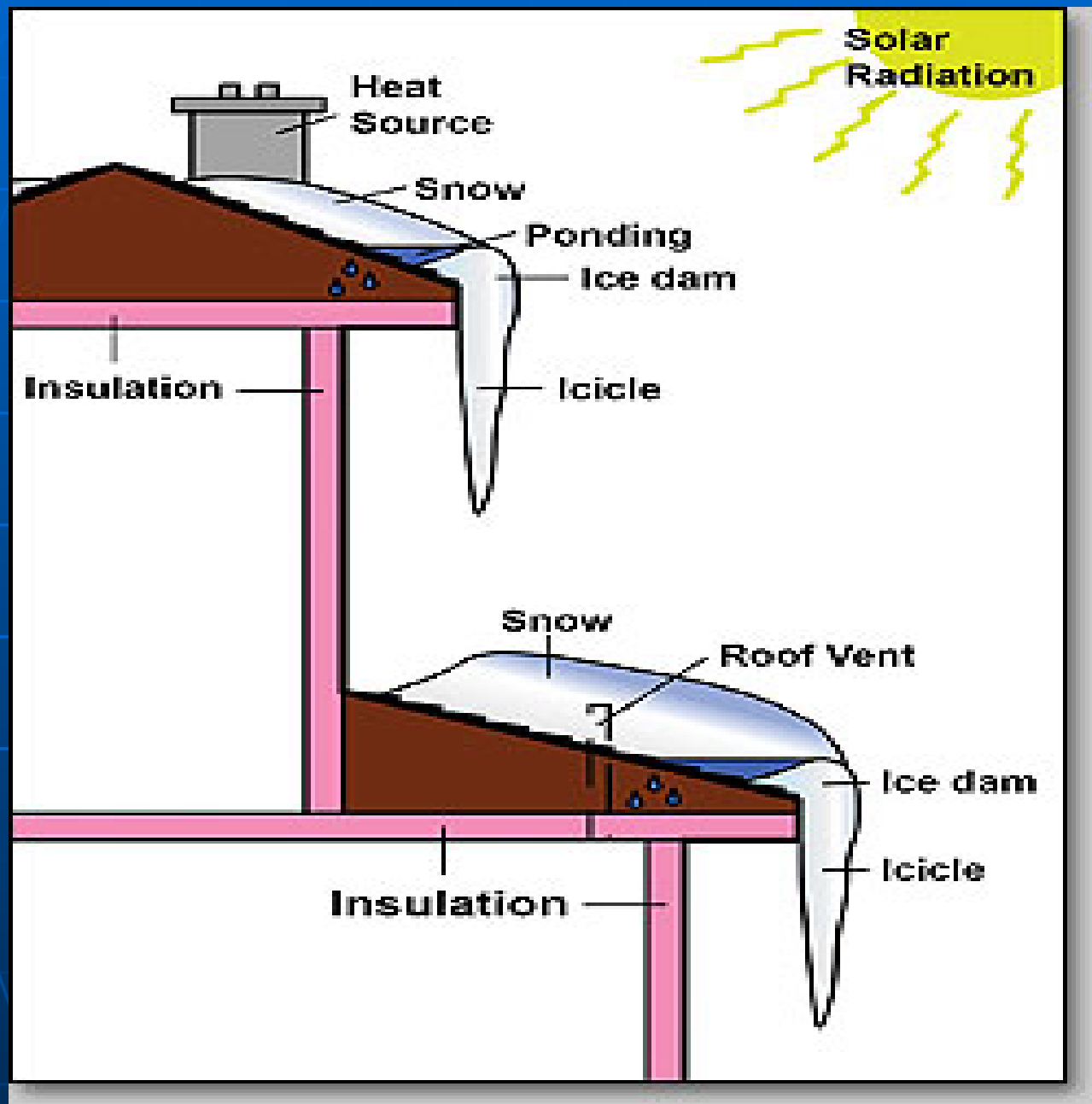
A barrier that consists of at least two layers of underlayment cemented together ...OR

R905.2.7.1 Ice protection on roofs

... a self-adhering polymer modified bitumen sheet (ice shield) shall be used in place of normal underlayment and extend from the eaves' edge to a point at least **24 inches** inside the exterior wall line of the building.

ICE SHIELD

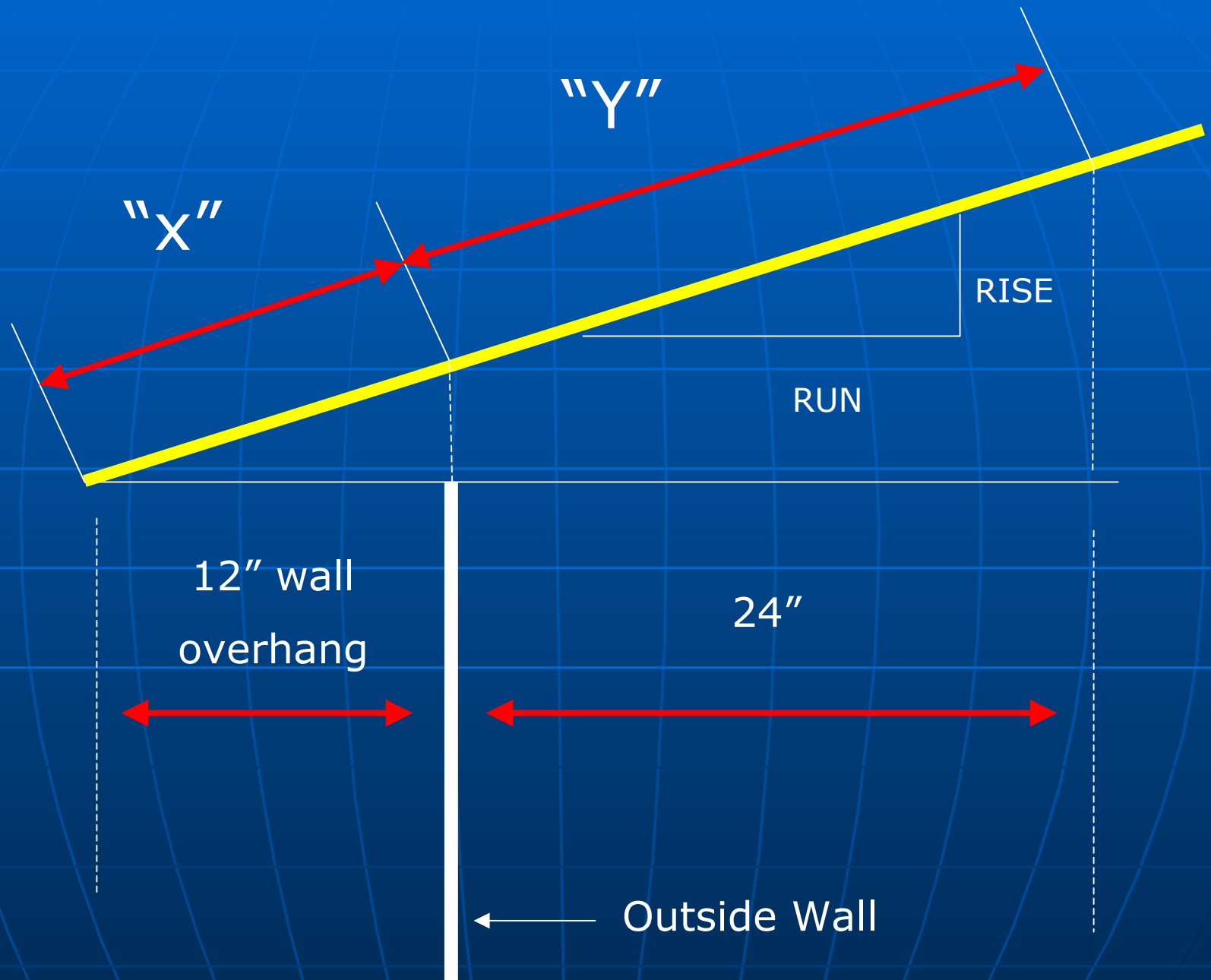












LENGTH OF ICE SHIELD REQUIRED

Slope	"X"	"Y"	"X" + "Y"
Rise to Run with a 12" overhang			Length REQUIRED
4:12	16 7/8"	25 5/16"	42"
5:12	17 5/16"	26"	43"
6:12	17 7/8"	26 13/16"	45"
10:12	20 7/8"	31 1/4"	52"
12:12	22 5/8"	34"	57"

A minimum of two layers of Ice Shield is required



HOT TOPIC #9

WINDOW FLASHING

R703 Flashing requirements for windows and doors

1. Flash the sill:

- Sill flashing must extend a minimum of **6 inches** beyond each side of the opening.
- Sill flashing must turn up a minimum of **6 inches** on the jack studs.
- Flashing must extend to the surface of the exterior wall finish (bottom edges of sill flashing are to be **left loose**)
- Seal top edges of flashing.



R703 Flashing requirements for windows and doors

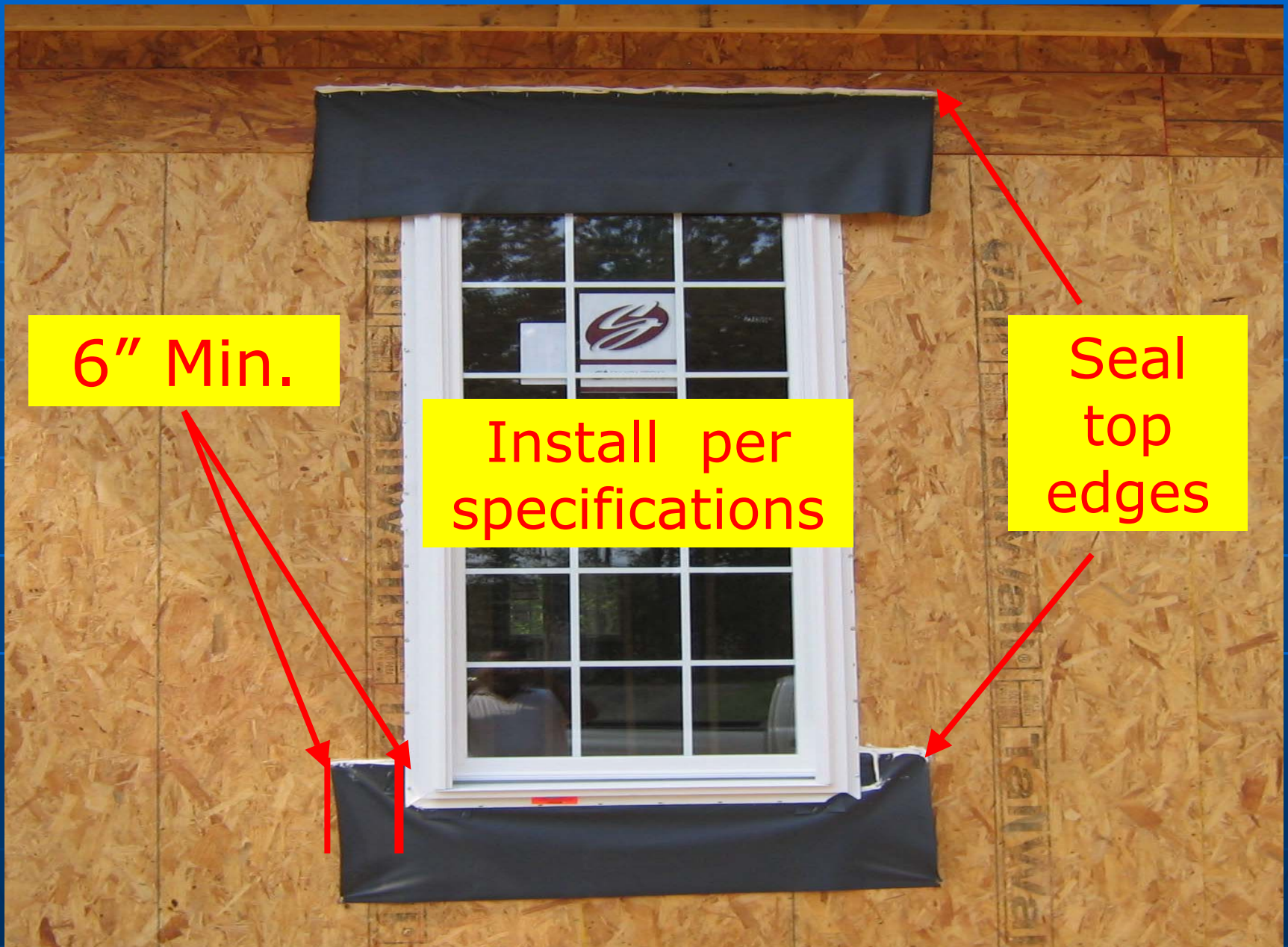
2. Set the window or door per the manufacturer's installation instructions:

- Jamb flashing, if required, in shingle fashion
- Caulking
- Required fasteners (nailing)

R703 Flashing requirements for windows and doors

3. Install head flashing:

- Seal the top edge of the flashing
- Install flashing to divert water to the exterior finish



6" Min.

Install per specifications

Seal top edges

Flashing Requirements

Materials approved for flashing openings are permitted to be:

- Polyvinyl chloride (PVC)
- Painted or PVC coated aluminum
- Galvanized sheet metal or copper
- 6" or wider adhesive backed modified bitumen flashing tape
- 6" or wider polyethylene coated flashing
- 4" or wider adhesive back butyl flashing tape

Flashing Requirements

- 6 mil polyethylene is not an approved flashing

Flashing Requirements

- Brick veneer requires **PVC** flashing or equivalent
- Brick veneer requires weep holes at top and bottom...maximum of **6 inches** in from corners of window or door and then **33 inches o.c.**
- Minimum space of **3/8 inch** is required between the window and bottom brick rowlock or masonry unit

Flashing Requirements

- If bitumen based tape is used and does not properly adhere to the sheathing it may be fastened with mechanical fasteners in accordance with the manufacturer's specification.

Flashing requirements

TYVEK or equivalent products

- Tyvek or equivalent is an acceptable drainage plane provided that the termination at the bottom extends below the sill and turns out from the wall.
- Tyvek or equivalent must be installed as required by the manufacturer's specifications

DuPont™ Tyvek® HomeWrap® ■ DuPont™ FlexWrap™ ■ DuPont™ StraightFlash™

How to install Tyvek® HomeWrap® on Vertical Walls, **BEFORE** Windows or Doors are installed

WRAPPING VERTICAL WALLS:

STEP 1

UNWRAP roll at corner, leaving 6"-12" overlap.

Line up printed stud marks with first stud.

STEP 2

Roll should be plumb. Bottom roll edges should extend over sill plate interface at least 2" to 3".

For maximum air leakage reduction, SEAL wrap with caulk or tape.

STEP 3A

Secure Tyvek® weather resistive barrier every 12"-18" on vertical stud line. With wood, insulated sheathing board or exterior gypsum board, use large head or plastic washer head nails (such as Tyvek® WrapCaps or Wrap Cap Screws), as a best practice. Wide staples with 1.0 inch minimum crown can also be used.

STEP 3B

For masonry applications, temporarily attach to masonry, using adhesives with polyurethane, elastomeric or latex base in vertical strips spaced approximately 24" apart. For a list of suggested adhesives, call 1-800-44-TYVEK. Use cladding fasteners as permanent means of attachment.

STEP 4

Unroll directly over windows and doors. Upper roll overlaps bottom roll by 6" horizontally.

STEP 5

COVER interface of upper and lower top plates with Tyvek®. As a best practice, TAPE all horizontal seams at band joists, headers and roll overlaps with 2" or 3" DuPont™ Tyvek® Tape.

Repair any accidental tears, damage or penetrations with DuPont™ Tyvek® Tape.



The miracles of science™

INSTALLATION GUIDELINES
for DuPont® Flashing Systems™ with integral flanged windows
AFTER weather-resistive barrier is installed.

DuPont® FlexWrap™ and DuPont® StraightFlash™ are highly engineered flashing tapes designed to be compatible with Tyvek® Weatherization Systems products. For optimal weather-resistive protection, we suggest you use Tyvek® HomeWrap®, Tyvek® StuccoWrap® or Tyvek® CommercialWrap®, DuPont® Tyvek® Tape, and Tyvek® Wrap Caps.

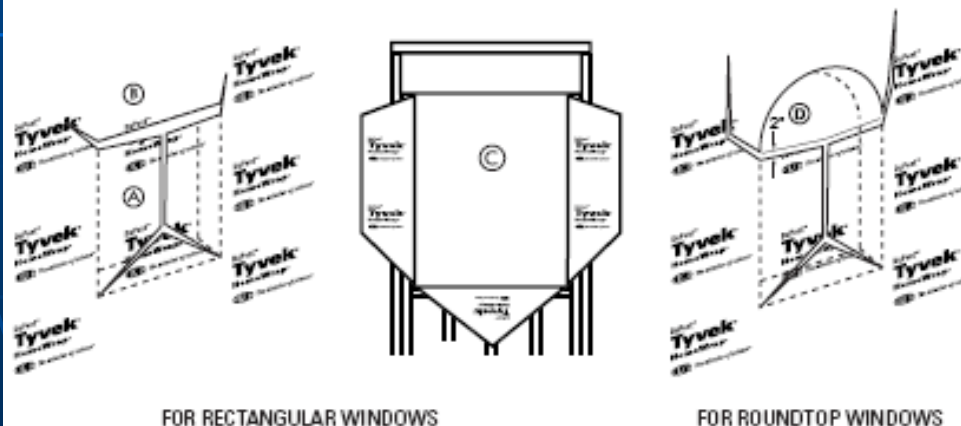
GENERAL INSTRUCTIONS:

- DuPont® FlexWrap™ and StraightFlash™ should be installed on clean, dry surfaces. Wipe surfaces to remove moisture, dirt, grease and other debris that could interfere with adhesion.
- Apply pressure along entire surface for a good bond.
- Remove all wrinkles and bubbles by smoothing surface and repositioning as necessary.
- DO NOT STRETCH DuPont® FlexWrap™ WHEN INSTALLING.
- DuPont® FlexWrap™ performs best when installed at temperatures above 40°F (4°C).
- For additional guidelines and suggested caulks, please call 1-800-44-TYVEK (800-448-9835).

STEP 6

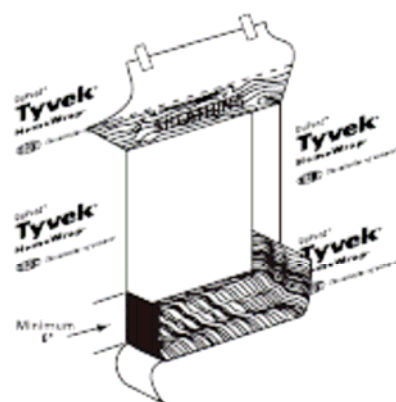
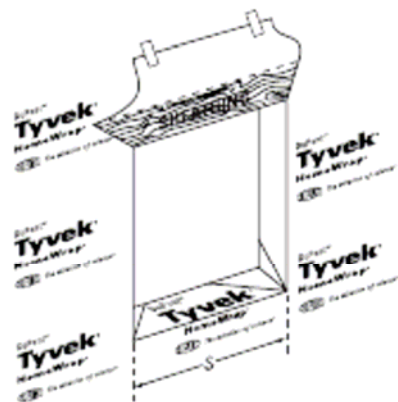
PREPARE WEATHER-RESISTIVE BARRIER FOR WINDOW OR DOOR INSTALLATION:

- Make a modified "I-Cut" in the weather-resistive barrier. Begin with a horizontal cut across the top of the window frame. (For roundtop windows, the cut should begin 2" above the mull joint (see D)). From the center cut straight down about two-thirds of the way then angling the cut to each corner (see A).
- Cut a flap above the rough opening to expose sheathing or framing members and allow head flashing installation. Head flashing should adhere to exposed sheathing or framing members.
- Fold side and bottom flaps into rough opening and secure. Rip head flap up and temporarily secure.



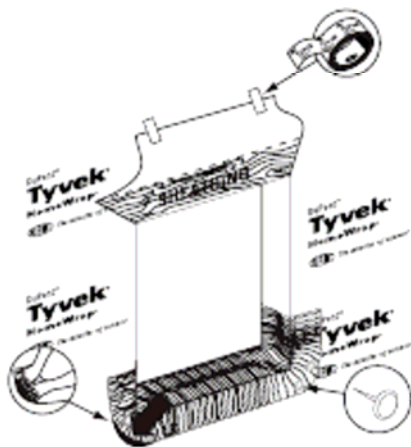
STEP 7

- Out DuPont® FlexWrap™ at least 12" longer than width of rough opening sill (S).
- Remove first piece of release paper, cover horizontal sill by aligning inside edge of sill, and adhere into rough opening across sill and up jambs (min. 6"). Cover horizontal sill by aligning FlexWrap™ edge with inside edge of sill.
- Remove second release paper.



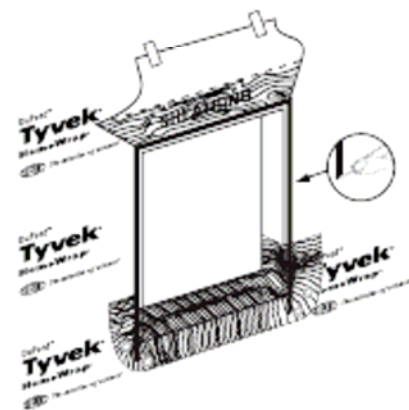
STEP 8

- Fan DuPont® FlexWrap™ at bottom corners onto face of wall.
- Firmly press sill flashing to ensure full adhesion.
- SECURE FANNED EDGES WITH MECHANICAL FASTENERS. (i.e. CapNails, staples, screws, etc.)



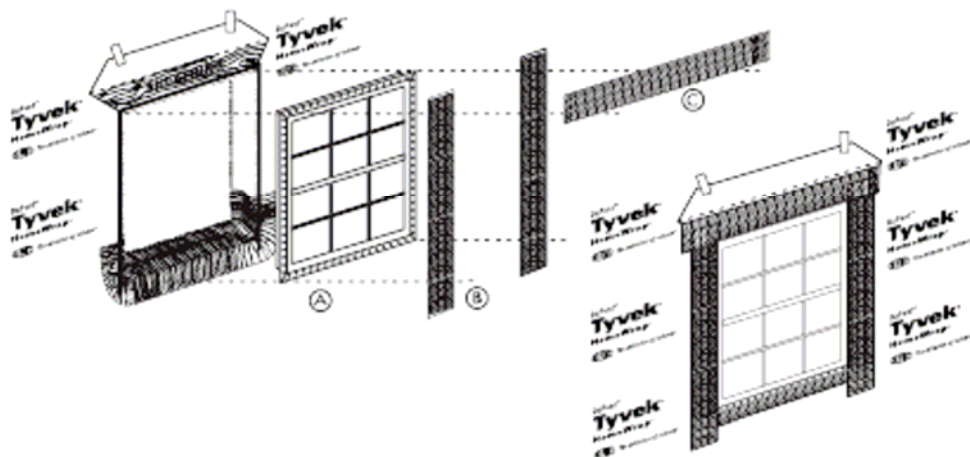
STEP 9

- Apply continuous bead of caulk to wall or back side of window mounting flange across jambs and head, but leave bottom sill flange uncaulked.
- DO NOT APPLY CAULK ACROSS BOTTOM SILL FLANGE.



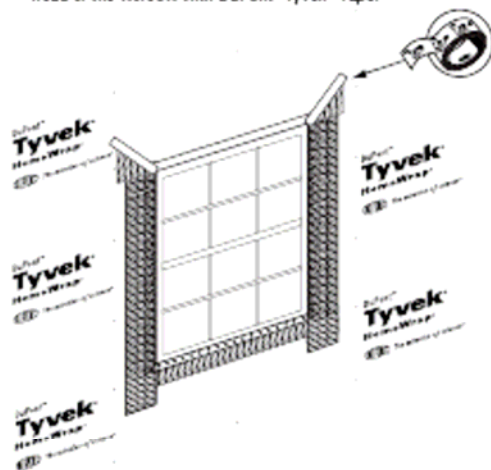
STEP 10

- Install window/door according to manufacturer's instructions. (Illustration A)
- Cut two pieces of DuPont™ StraightRash™ or FlexWrap™ for jamb flashing extending 1" above window head flange and below bottom edge of sill flashing. Remove release paper and press tightly along sides of window frame. (Illustration B)
- Cut a piece of DuPont™ StraightRash™ or FlexWrap™ for head flashing, which extends beyond outer edges of jamb flashings. Remove release paper and install completely covering mounting flange and adhering to exposed sheathing or framing members. (Illustration C)



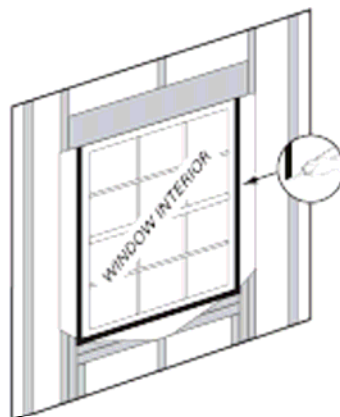
STEP 11

- Flip down upper flap of weather-resistive barrier so it lays flat across head flashing.
- Tap along all cuts in weather-resistive barrier and across head of the window with DuPont™ Tyvek® Tape.



STEP 12

Caulk (using backer rod if necessary) to seal rear of window/door frame to inside of rough opening across bottom and a minimum of 12" up the sides to form a back dam. To air seal around the window opening, caulk completely around the back edge of the window perimeter.



Website

- ICC website: www.iccsafe.org
- VBCOA website: www.vbcoa.org
- Chesterfield: www.chesterfield.gov
- Hanover: www.co.hanover.va.us
- Henrico: www.co.henrico.va.us

Q and A

- Open forum
- Questions and discussion

The End...

